

placing the selectively activatable layer overlying the specimen at a finite separation less than the first interval; and,

selectively activating the selectively activatable layer to cause volumetric expansion at least to the first interval to locally contact a portion of the specimen at the extremity of the volumetric expansion.

2. (Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

providing a supporting substrate; and,

adhering the selectively activatable layer to the supporting substrate.

3. (Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

visualizing the specimen; and,

activating the selectively activatable layer overlying the visualized portion of the specimen.

4. (Once Amended) The process of laser capture microdissection from a specimen according to claim 1 where the selectively activating step forms a mechanical bond with the specimen.

5. (Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

placing a surface on the selectively activatable layer exposed to the specimen having an affinity specific bond with at least one part of the specimen; and,

activating the selectively activatable layer to cause the surface to contact the specimen and form affinity specific bonds with the portion of the specimen having the specific surface affinity defined by the surface on the activatable layer.

6. (Once Amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

repeating the selectively activating of different portions of the selectively activatable layer to cause corresponding contact and capture of different targeted elements within the specimen.

7. (Once Amended) The process of laser capture microdissection from a specimen according to claim 6 having the steps of:

moving the selectively activatable layer with respect to the specimen to concentrate the series of captured elements on the activatable layer compared to their spacing within the specimen.

8. (Once Amended) A process of laser capture microdissection from a specimen having the steps of:

providing a laser activated selectively activatable layer having which upon laser activation causes heat generated volumetric expansion and upon cooling elastically contracts, an extremity of the volumetric expansion exceeding a first interval taken normal to a surface of the selectively activatable layer;

placing the selectively activatable layer overlying the specimen at a separation less than the first interval; and,

selectively activating with laser energy to heat the selectively activatable layer to cause volumetric expansion at least to the first interval to locally contact and bond to a portion of the specimen at the extremity of the volumetric expansion;

ceasing the laser activation; and,

allowing the volumetric expansion to cool.

9. (Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

contracting the volumetric expansion to separate the targeted portion of the specimen from the specimen and thereby microdissecting the portion of the specimen from a remainder of the specimen.

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Q3
D1

10. (Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

contracting the volumetric expansion by cooling while maintaining attachment to the portion of the specimen to elastically tensioning the volumetric expansion of the activatable layer; and,

withdrawing the activatable layer from the specimen to separate the portion of the specimen from the remainder of the specimen thereby microdissecting the portion of the specimen.

11. (Once Amended) The process of laser capture microdissection from a specimen according to claim 10 where the withdrawing the activatable layer step comprises:

contracting the volumetric expansion to withdraw the portion of the specimen bonded to the volumetric expansion within the first interval whereby the portion of the specimen bonded to the volumetric expansion cannot contact underlying and remaining portions of the specimen when the activatable layer is maintained separate from the specimen by the first interval.

12. (Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

providing activatable layer with strong long chain thermoplastic polymers with a large volume change associated with phase transition.

13. (Once Amended) The process of laser capture microdissection from a specimen according to claim 8 having the steps of:

attaching the activatable layer to a supporting substrate.

15. (Once Amended) The process of laser capture microdissection from a specimen according to claim 14 having the steps of:

B1
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C3

sub
C4

sub
C5
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D1